CLAIMS

1. A method for labeling multi material data, for a sequence of processing steps using a computer, the steps including acquisition of external data (12), storage of cell data through octree division of the external data, and simulation using the cell data, the method comprising:

an external data acquisition step (S1) of acquiring the external data (12) composed of boundary data and physical property values of an object (1);

an external data input step (A) of inputting the external data (12) into a computer;

a cell division step (B) of dividing the external data into rectangular solid cells (13) having boundary planes orthogonal to each other;

a cell classification step (C) of classifying each of the divided cells into a boundary cell (13a) including the boundary data, and a non-boundary cell (13b) not including the boundary data;

a space classification step (D) of classifying the vertices of each cell into multiple spaces partitioned by the boundary data;

a simulation step (S3) of performing a simulation using the physical property values for each cell; and

an output step (S4) of outputting simulation results,

wherein the cell classification step (C) comprises the steps of:

further classifying each of the boundary cells (13a) into a first type cell and a second type cell, the first type cell having a cutting point at which an edge line or vertex is cut by the boundary data, the second type cell having a cutting point that lies on a boundary with another cell of different hierarchy, and the second type cell being larger than the another cell; and

assigning a material number to each cell vertex.

2. A method for labeling multi material data according to claim 1, wherein the space classification step (D) further comprises:

a non-boundary cell setting step (D1) of assigning all the non-boundary cells space numbers different for respective spaces partitioned by boundary data; and

a boundary cell setting step (D2) of assigning each vertex of the boundary cell the space number of the neighboring non-boundary cell that is not partitioned by the boundary data.

3. A method for labeling multi material data according to claim 2, wherein the boundary cell setting step (D2) comprises a step of assigning a vertex matching the boundary data either of the space numbers of two neighboring non-boundary cells.

4. A method for labeling multi material data

according to claim 1, wherein the cell division step (B) comprises a step of re-dividing the rectangular solid cells (13) by octree division until a number of cutting points enough to reconstruct boundary shape elements forming the boundary face included in the external data are obtained.

5. A method for labeling multi material data according to claim 1, wherein the division step (B) comprises a step of dividing voxel data into rectangular solid cells (13) of the same size.

6. A method for labeling multi material data according to claim 2, wherein the non-boundary cell setting step (D1) comprises a step of scanning all the rectangular solid cells (13) repeatedly in sequence, or in recursive processing, in the three directions of X, Y, and Z.

7. A program for labeling multi material data, using a computer to perform:

an external data input step (A) of inputting external data (12) composed of boundary data of an object;

a cell division step (B) of dividing the external data into rectangular solid cells (13) having boundary planes orthogonal to each other;

a cell classification step (C) of classifying each

of the divided cells into a boundary cell (13a) including the boundary data, and a non-boundary cell (13b) not including the boundary data; and

a space classification step (D) of classifying the vertices of each cell into multiple spaces partitioned by the boundary data.